DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8-8-2011 has been entered.

2. This action is responding to application amendments filed on 1-21-2010. Claims **1 - 46** are pending. Claims **1, 20, 21, 22, 32, 45** have been amended. Claims **1, 20, 21, 22, 32, 45** are independent. File date is 1-2-2004.

- Applicant has amended Specification of the present application, thereby making the present application a CONTINUATION-IN-PART of the previously co-pending U.S. Application No. **10/230,643**, now issued U.S. Patent No. 7,295,555 B2. That Application has an actual filing date of **August 29, 2002** and an earliest Provisional file date of **March 8, 2002**. Thus, the priority date for invention is now **March 8, 2002**.
- The 101 Rejection for Claim **20** is withdrawn due to the addition of a memory for storage of program instructions.
- The 112 Rejection for Claims 21, 22 and 45 is maintained. There is no disclosure for the claim limitation that the marker is not adjacent to a FPDU header. The disclosure within recently incorporated application 10/230643 that

indicates "markers not being adjacent to the ULP header" should be recited by Applicant for verification before removal of 112 Rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims **21, 22, 45** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There does not appear to be disclosure for the claim limitation: *"wherein marker is not adjacent to the FPDU header"* in the specification or the original claims. The disclosures within the recently incorporated application 10/230,643 which Applicant feels indicate "markers not being adjacent to the ULP header" should be recited by Applicant for verification before removal of 112 Rejection. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made

to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims **1 - 16, 18 - 26, 28, 29 - 31, 32, 45, 46** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Bailey et al.** (**XP-002272247**: "TCP ULP Framing Protocol (TUF) draft-ietf-tsvwg-tcp-ulp-frame-01) in view of **Pinkerton et al.** (US Patent No. **7,124,198**) and further in view of **Boucher et al.** (US PGPUB No. **20040073703**).

Regarding Claim 1, Bailey discloses a system for handling transport protocol segments (TPSes), comprising: a receiver that receives an incoming TPS (Bailey pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, TUF removes shim and delivers ULPDUs to ULP; pg 6, ll 4-6: recognize ULPDUs by processing each TCP segment independently), the incoming TPS comprising a TPS header, an aligned upper layer protocol (ULP) header, a complete ULP data unit (ULPDU), (Bailey pg 5, ll 12: removes shim (header) and delivers ULPDU to TUF), wherein the receiver directly places the complete ULPDU into a host memory, and wherein the marker header is disposed between the aligned ULP header and the TPS header. (Bailey pg 5, ll 20-22: place data (framed ULPDU) in memory on host; pg 6, ll 7-11: implementing direct data placement for TCP-based ULPs; pg 12, ll 6-8: shim layer above the TCP (transport) layer and below the ULP layer; (between the ULP header (layer) and TCP or TPS header (layer))

Bailey does not explicitly disclose a marker header and a marker where the marker is disposed in the complete ULPDU and points to the marker header.

However, Pinkerton discloses a marker header and a marker, wherein the marker <u>of the</u>

incoming TPS is disposed in the complete ULPDU and points to the marker header. (Pinkerton col 2, ll 33-36: put a marker in each transport segment (transport data packets, TPS (TCP) layer) that provides a pointer to ULP header)

It would have been obvious to one of ordinary skill in the art to modify Bailey for a marker header and a marker where the marker is disposed in the complete ULPDU and points to the marker header as taught by Pinkerton. One of ordinary skill in the art would have been motivated to employ the teachings of Pinkerton in order to eliminate the need for an intermediate reassembly buffer in the performance path. (Pinkerton col 2, l 67 - col 3, l 3)

Bailey-Pinkerton does not explicitly disclose the marker backward points to same incoming TPS.

However, Boucher discloses wherein the marker is disposed and backward points to the same incoming TPS. (Boucher para 331, ll 1-9: including data pointer to current location of the data, data length fields, and flags (header information); points to packet descriptor associated with data being mapped)

It would have been obvious to one of ordinary skill in the art to modify Bailey for the marker backward points to same incoming TPS as taught by Boucher. One of ordinary skill in the art would have been motivated to employ the teachings of Boucher for the benefits achieved from increasing the speed of processing and transferring of data being communicated. (Boucher para 16, ll 1-4)

Regarding Claim 2, Bailey discloses the system according to claim 1, wherein the

receiver comprises a network subsystem and the host memory, wherein the network subsystem receives the incoming TPS and directly places data of the complete ULPDU into the host memory. (Bailey pg 5, ll 20-22: place data (framed ULPDU) in memory on host; pg 6, ll 7-11: implementing direct data placement for TCP-based ULPs)

Regarding Claim 3, Bailey discloses the system according to claim 1, wherein the network subsystem comprises a network interface card (NIC) or a network controller. (Bailey pg 7, ll 30-32: direct data placement by NIC (network interface controller) to place data directly from network into designated application buffers)

Regarding Claim 4, Bailey discloses the system according to claim 1, wherein the ULPDU comprises a framing protocol data unit (FPDU). (Bailey pg 13, ll 13-15: TUF sends groups of one or more complete ULPDUs in a framing protocol data unit (FPDU))

Regarding Claim 5, Bailey discloses the system according to claim 4, wherein the FPDU comprises a data unit created by a ULP using a marker-based ULPDU aligned (MPA) framing protocol. (Bailey pg 13, ll 13-15: TUF sends groups of one or more complete ULPDUs in a framing protocol data unit (FPDU))

Regarding Claim 6, Bailey discloses the system according to claim 1, wherein the aligned ULP header comprises an aligned FPDU header. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to

receiving TUF (TCP Upper Layer Protocol) layer, frame aligned)

Regarding Claim 7, Bailey discloses the system according to claim 6, wherein the aligned ULP header comprises the aligned FPDU header disposed adjacently to a TPS header of the TPS. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, frame aligned)

Regarding Claim 8, Bailey discloses the system according to claim 1, wherein the aligned ULP header is disposed a preset length away from a TPS header of the TPS. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, frame aligned; alignment implies length from header) for ULPDU)

Regarding Claim 9, Bailey discloses the system according to claim 1, wherein the aligned ULP header is disposed a particular length away from the TPS header, the particular length being related to information in a field in the TPS. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, frame aligned; alignment implies length from header for ULPDU)

Regarding Claim 10, Bailey discloses the system according to claim 9, wherein the

field comprises a marker field. (Bailey pg 11, l 36 - pg 12, l 4: determine ULPDU starts at beginning of segment, perform ULP aware direct placement of ULPDU based on header placement)

Regarding Claim 11, Bailey discloses the system according to claim 1, wherein the receiver is a flow-through receiver. (Bailey pg 5, ll 10-12: TCP communications receiver)

Regarding Claim 12, Bailey discloses the system according to claim 1, wherein the TPS comprises a transmission control protocol (TCP) segment. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications)

Regarding Claim 13, Bailey discloses the system according to claim 12, wherein the TCP segment is part of a TCP byte stream. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications)

Regarding Claim 14, Bailey discloses the system according to claim 1, wherein the receiver comprises a buffer. (Bailey pg 7, ll 30-32: direct data placement by NIC into application buffers)

Bailey does not explicitly disclose to scale approximately linearly with a network speed or a network bandwidth.

However, Pinkerton discloses wherein the size of the buffer does not scale approximately linearly with a network speed or a network bandwidth. (Pinkerton col 3, ll

52-67: bandwidth considerations processing ULPDUs; buffer size does not scale with network speed)

Motivation for Pinkerton to disclose to scale approximately linearly with a network speed or a network bandwidth is as stated in Claim 1 above.

Regarding Claim 15, Bailey discloses the system according to claim 1, wherein the receiver comprises a buffer. (Bailey pg 7, ll 30-32: direct data placement by NIC into application buffers)

Bailey does not explicitly disclose to scale with the number of connections.

However, Pinkerton discloses wherein the size of the buffer does not scale with the number of connections. (Pinkerton col 3, ll 52-67: bandwidth considerations processing ULPDUs; buffer size not dependent on number of connections)

Motivation for Pinkerton to disclose to scale with the number of connections is as stated in Claim 1 above.

Regarding Claim 16, Bailey discloses the system according to claim 1, wherein the incoming TPS comprises information that is used to place the complete ULPDU in the host memory. (Bailey pg 5, ll 10-12: delivers shimmed ULPDUs (attached headers) to TUF, removes headers and delivers to ULP; pg 5, ll 20-22: use information in framed ULPDUS to place data in memory of host)

Regarding Claim 18, Bailey discloses the system according to claim 1, wherein the

incoming TPS comprises an out-of-order incoming TPS. (Bailey pg 4, ll 35-38: TCP segments arrive out of order, TUF protocol finds ULPDU headers in TCP stream even when TCP segments are out of order, recovery of out of order ULPDUs processing)

Regarding Claim 19, Bailey discloses the system according to claim 1, wherein the receiver does not store only a portion of the complete ULPDU. (Bailey pg 11, l 36 – pg 12, l 4: ULPDU completely contained with TCP segment; pg 7, ll 30-32: direct data placement from network interface into application buffers)

Regarding Claim 20, Bailey discloses a system for handling TPSes, comprising: a sender, wherein the sender sends a TPS, the sent TPS comprising a TPS header, an aligned ULP header and one or more complete ULPDUs, wherein the marker header is disposed between the aligned ULP header and the TPS header. (Bailey pg 11, l 36 - pg 12, l 4: ULPDU completely contained with TCP segment; pg 7, ll 30-32: direct data placement by network interface into application buffers; pg 12, ll 6-8: shim layer above the TCP (transport) layer and below the ULP layer; (between the ULP header (layer) and TCP or TPS header (layer))

Bailey does not explicitly disclose a marker and a marker header where the marker is disposed in the complete ULPDU.

However, Pinkerton discloses a processor and a memory, wherein the processor is operatively coupled to the memory, and a marker, a marker header, wherein the marker of the sent TPS is disposed in one of the one or more complete ULPDUs and points to

the marker header. (Pinkerton col 2, ll 33-36: put a marker in each transport segment (transport data packets, TPS (TCP) layer) that provides a pointer to ULP header; col 5, ll 12-14: processing device includes a processing unit and system memory)

Motivation for Pinkerton to disclose a marker and a marker header where the marker is disposed in the complete ULPDU is as stated in Claim 1 above.

Bailey-Pinkerton does not explicitly disclose the marker backward points to the same sent TPS.

However, Boucher discloses wherein the marker is disposed and <u>backward</u> points to <u>the same sent TPS</u>. (Boucher para 331, ll 1-9: including data pointer to current location of the data, data length fields, and flags (header information); points to packet descriptor associated with data being mapped)

It would have been obvious to one of ordinary skill in the art to modify Bailey for the marker backward points to the same incoming TPS as taught by Boucher. One of ordinary skill in the art would have been motivated to employ the teachings of Boucher for the benefits achieved from increasing the speed of processing and transferring of data being communicated. (Boucher para 16, ll 1-4)

Regarding Claim 21, Bailey discloses a method for handling TPSes, comprising: aligning an FPDU header in a known position in a TPS with respect to a TPS header; and placing a complete FPDU in the TPS; and wherein the marker is not adjacent to the FPDU header. (Bailey pg 11, l 36 - pg 12, l 4: ULPDU completely contained with TCP segment; pg 7, ll 30-32: direct data placement by network interface into application

buffers; pg 12, ll 6-8: shim layer above the TCP (transport) layer and below the ULP layer; (between the ULP header (layer) and TCP or TPS header (layer))

Bailey does not explicitly disclose inserting a marker inside the complete FPDU, wherein the marker points to the FPDU header.

However, Pinkerton discloses inserting a marker inside the complete FPDU, wherein the marker points to the FPDU header. (Pinkerton col 2, ll 33-36: put a marker in each transport segment (transport data packets, TPS (TCP) layer) that provides a pointer to ULP header)

Motivation for Pinkerton to disclose inserting a marker inside the complete FPDU, wherein the marker points to the FPDU header is as stated in Claim 1 above.

Bailey-Pinkerton does not explicitly disclose the marker backward points to the same TPS.

However, Boucher discloses wherein the marker of the TPS backward points to the same TPS. (Boucher para 331, ll 1-9: including data pointer to current location of the data, data length fields, and flags (header information); points to packet descriptor associated with data being mapped)

It would have been obvious to one of ordinary skill in the art to modify Bailey for the marker backward points to the same TPS as taught by Boucher. One of ordinary skill in the art would have been motivated to employ the teachings of Boucher for the benefits achieved from increasing the speed of processing and transferring of data being communicated. (Boucher para 16, ll 1-4)

Regarding Claim 22, Bailey discloses a method for handling TPSes, comprising: receiving an incoming TPS, the TPS comprising, a complete FPDU and an FPDU header in a known position with respect to a TPS header, wherein the marker is not adjacent to the FPDU header. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, frame aligned; alignment implies length from header for ULPDU; pg 12, ll 6-8: shim layer above the TCP (transport) layer and below the ULP layer; (between the ULP header (layer) and TCP or TPS header (layer))

Bailey does not explicitly disclose the FPDU includes a marker and the marker points to the FPDU header.

However, Pinkerton discloses wherein the FPDU includes a marker, wherein the marker points to the FPDU header. (Pinkerton col 2, ll 33-36: put a marker in each transport segment (transport data packets, TPS (TCP) layer) that provides a pointer to ULP header)

Motivation for Pinkerton to disclose the FPDU includes a marker and the marker points to the FPDU header is as stated in Claim 1 above.

Bailey-Pinkerton does not explicitly disclose the marker backward points to the same TPS.

However, Boucher discloses wherein the marker of the TPS backward points to the same TPS. (Boucher para 331, ll 1-9: including data pointer to current location of the data, data length fields, and flags (header information); points to packet descriptor associated with data being mapped)

It would have been obvious to one of ordinary skill in the art to modify Bailey for the marker backward points to the same TPS as taught by Boucher. One of ordinary skill in the art would have been motivated to employ the teachings of Boucher for the benefits achieved from increasing the speed of processing and transferring of data being communicated. (Boucher para 16, ll 1-4)

Regarding Claim 23, Bailey discloses the method according to claim 22, wherein the FPDU header is adjacent to the TPS header. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, frame aligned; alignment implies length from header for ULPDU)

Regarding Claim 24, Bailey discloses the method according to claim 22, further comprising: performing layer 2 (L2) processing, layer 3 (L3) processing and layer 4 (L4) processing on the incoming TPS by a network subsystem. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications; TCP, IP, lower layer (L2) communications processing; TCP/IP processing (implies L3, L4 processing))

Regarding Claim 25, Bailey discloses the method according to claim 24, further comprising: obtaining FPDU length information from the FPDU header. (Bailey pg 13, l 5: shim layer PDUs called FPDU; pg 5, ll 10-12: delivers shimmed (header added) ULPDUs to receiving TUF (TCP Upper Layer Protocol) layer, frame aligned; alignment

implies length from header for ULPDU)

Regarding Claim 26, Bailey discloses the method according to claim 25, further comprising: to copy data of the FPDU from the network subsystem to a host memory. (Bailey pg 7, ll 30-32: direct data placement by NIC into application buffers)

Bailey does not explicitly disclose programming a direct memory access (DMA) engine. However, Pinkerton discloses programming a direct memory access (DMA) engine. (Pinkerton col 2, ll 10-13: DMA (direct memory access) protocol; col 3, ll 52-58; col 3, ll 63-67: direct data placement; maps incoming data to a specific buffer and offset; col 8, ll 1-3: direct placement information placed in framing header)

Motivation for Pinkerton to disclose a direct memory access (DMA) engine is as stated in Claim 1 above.

Regarding Claim 28, Bailey discloses the method according to claim 22 wherein a TPS comprises a plurality of complete FPDUs. (Bailey pg. 11, ll 36 - pg 12, l 4: determine that ULPDU starts at beginning of segment, and subsequent ULPDUs contained in that segment (more than one ULPDU contained in segment))

Regarding Claim 29, Bailey discloses the method according to claim 24, further comprising: performing ULP processing on the incoming TPS by the network subsystem, wherein the L2 processing, the L3 processing, the L4 processing and the ULP processing can occur in parallel or in any order. (Bailey pg 5, l 6; pg 5, ll 10-11:

TUF utilizes TCP communications for layered communications; TCP, IP, lower layer (L2) communications processing; TCP/IP processing (implies L3, L4 processing))

Regarding Claim 30, Bailey discloses the method according to claim 29, wherein the L2 processing, the L3 processing, the L4 processing and the ULP processing do not occur in the listed order in a receiver. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications; TCP, IP, lower layer (L2) communications processing; TCP/IP processing (implies L3, L4 processing); pg 4, ll 35-38: if TCP segments arrive out of order, TUF protocol finds ULPDU headers in TCP stream even when TCP segments are out of order, recovery of out of order ULPDUs processing)

Regarding Claim 31, Bailey discloses the method according to claim 29, wherein the ULP processing, the L4 processing, the L3 processing and the L2 processing do not occur in the listed order in a transmitter. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications; TCP, IP, lower layer (L2) communications processing; TCP/IP processing (implies L3, L4 processing); pg 4, ll 35-38: TCP segments arrive out of order, TUF protocol finds ULPDU headers in TCP stream even when TCP segments are out of order, recovery of out of order ULPDUs processing)

Regarding Claim 32, Bailey discloses a system for handling transport protocol segments (TPSes), comprising: a receiver, wherein the receiver receives an incoming

TPS, the incoming TPS comprising a TPS header, an aligned upper layer protocol (ULP) header and a complete ULP data unit (ULPDU), wherein the marker header is disposed between the aligned ULP header and the TPS header, wherein the receiver to place the complete ULPDU into a host memory. (Bailey pg 5, ll 20-22: place data (from framed ULPDU) in memory on host; pg 6, ll 7-11: implementing direct data placement for TCP-based ULPs; pg 12, ll 6-8: shim layer above the TCP (transport) layer and below the ULP layer; (between the ULP header (layer) and TCP or TPS header (layer))

Bailey does not explicitly disclose a marker disposed in the complete ULPDU and points to the marker header.

However, Pinkerton discloses a marker, and a marker header, wherein the marker of the incoming TPS is disposed in the complete ULPDU and points to the marker header. (Pinkerton col 2, ll 33-36: put a marker in each transport segment (transport data packets, TPS (TCP) layer) that provides a pointer to ULP header)

In addition, Bailey does not explicitly disclose a DMA engine.

However, Pinkerton discloses programs a DMA engine. (Pinkerton col 2, ll 10-13: DMA (direct memory access) protocol; col 3, ll 52-58; col 3, ll 63-67: direct data placement; maps incoming data to a specific buffer and offset; col 8, ll 1-3: direct placement information placed in framing header)

Motivation for Pinkerton to disclose a marker disposed in the complete ULPDU and points to the marker header and a DMA engine is as stated in Claim 1 above.

Bailey-Pinkerton does not explicitly disclose the marker backward points to the same incoming TPS.

However, Boucher discloses wherein the marker backward points to the marker header of the same incoming TPS. (Boucher para 331, ll 1-9: including data pointer to current location of the data, data length fields, and flags (header information); points to packet descriptor associated with data being mapped)

It would have been obvious to one of ordinary skill in the art to modify Bailey for the marker backward points to the same incoming TPS as taught by Boucher. One of ordinary skill in the art would have been motivated to employ the teachings of Boucher for the benefits achieved from increasing the speed of processing and transferring of data being communicated. (Boucher para 16, ll 1-4)

Regarding Claim 45, Bailey discloses a method for handling TPSes, comprising: (a) receiving an incoming TPS, the TPS comprising a TPS header, a complete FPDU and an FPDU header in a known position with respect to a TPS header, wherein marker is not adjacent to the FPDU header; (b) performing layer 2 (L2) processing on the incoming TPS; (c) performing layer 3 (L3) processing on the incoming TPS; (d) performing layer 4 (L4) processing on the incoming TPS; and (e) performing ULP processing on the incoming TPS, wherein the performing of (b), (c), (d) and (e) occurs in any order. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications; TCP, IP, lower layer (L2) communications processing; TCP/IP processing (implies L3, L4 processing); pg 4, ll 35-38: TCP segments arrive out of order, TUF protocol finds ULPDU headers in TCP stream even when TCP segments are out of order, recovery of out of order ULPDUs processing; pg 12, ll 6-8: shim layer

above the TCP (transport) layer and below the ULP layer; (between the ULP header (layer) and TCP or TPS header (layer))

Bailey does not explicitly disclose a marker inserted in the complete FPDU, and wherein the marker points to the FPDU header.

However, Pinkerton discloses a marker, wherein the marker is inserted in the complete FPDU, and wherein the marker points to the FPDU header. (Pinkerton col 2, ll 33-36: put a marker in each transport segment (transport data packets, TPS (TCP) layer) that provides a pointer to ULP header))

Motivation for Pinkerton to disclose a marker inserted in the complete FPDU, and wherein the marker points to the FPDU header is as stated in Claim 1 above.

Bailey-Pinkerton does not explicitly disclose the marker backward points to the same incoming TPS.

However, Boucher discloses wherein the marker backward points to the same incoming TPS. (Boucher para 331, ll 1-9: including data pointer to current location of the data, data length fields, and flags (header information); points to packet descriptor associated with data being mapped)

It would have been obvious to one of ordinary skill in the art to modify Bailey for the marker backward points to the same incoming TPS as taught by Boucher. One of ordinary skill in the art would have been motivated to employ the teachings of Boucher for the benefits achieved from increasing the speed of processing and transferring of data being communicated. (Boucher para 16, ll 1-4)

Regarding Claim 46, Bailey discloses the method according to claim 45, wherein at least two of the performing of (b), (c), (d) and (e) occurs concurrently. (Bailey pg 5, l 6; pg 5, ll 10-11: TUF utilizes TCP communications for layered communications; TCP, IP, lower layer (L2) communications processing; TCP/IP processing (implies L3, L4 processing); pg 4, ll 35-38: if TCP segments arrive out of order, TUF protocol finds ULPDU headers in TCP stream even when TCP segments are out of order, recovery of out of order ULPDUs processing)

7. Claims **17, 27, 33 - 44** are rejected under 35 U.S.C. 103 (a) as being unpatentable over **Bailey-Pinkerton-Boucher** and further in view of **Wilson et al.** (US Patent No. **7,031,904**).

Regarding Claim 17, Bailey discloses the system according to claim 1.

Bailey does not explicitly disclose CRC values.

However, Wilson discloses wherein the receiver does not store partial cyclical redundancy check (CRC) values. (Wilson col 12, ll 11-13: include MAC header and a cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header is added to packet followed by CRC portion, CRC check increases data integrity)

It would have been obvious to one of ordinary skill in the art to modify Bailey to for CRC values as taught by Wilson. One of ordinary skill in the art would have been motivated to employ the teachings of Wilson for the benefits of fast and efficient utilization of communications within multiple types of network environments. (Wilson col 3, ll 6-9)

Regarding Claim 27, Bailey discloses the method according to claim 26.

Bailey does not explicitly disclose programming the DMA engine.

However, Pinkerton discloses programming the DMA engine. (Pinkerton col 2, ll 10-13: DMA (direct memory access) protocol; col 3, ll 52-58; col 3, ll 63-67: direct data placement; maps incoming data to a specific buffer and offset; col 8, ll 1-3: direct placement information placed in framing header)

Motivation for Pinkerton to disclose programming the DMA engine is as stated in Claim 14 above.

Bailey does not explicitly disclose a CRC machine.

However, Wilson discloses to move FPDU through a cyclical redundancy checking (CRC) machine. (Wilson col 12, ll 11-13: includes MAC header and cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose a CRC machine is as stated in Claim 17 above.

Regarding Claim 33, Bailey discloses the system according to claim 32.

Bailey does not explicitly disclose a CRC machine.

However, Wilson discloses wherein the receiver comprises a cyclical redundancy check (CRC) machine, and wherein the receiver uses the CRC machine once per ULPDU. (Wilson col 12, ll 11-13: include MAC header and a cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header is added to packet followed by CRC portion, CRC

check increases data integrity)

Motivation for Wilson to disclose a CRC machine is as stated in Claim 17 above.

Regarding Claim 34, Bailey discloses the system according to claim 33, wherein the receiver comprises a non-flow-through network interface card (NIC). (Bailey pg 7, ll 30-32: direct data placement by NIC (network interface) into designated application buffers)

Bailey does not explicitly disclose a DMA engine.

However, Pinkerton discloses a DMA engine. (Pinkerton col 2, ll 10-13: DMA (direct memory access) protocol; col 3, ll 52-58; col 3, ll 63-67: direct data placement; maps incoming data to a specific buffer and offset; col 8, ll 1-3: direct placement information placed in framing header)

Motivation for Pinkerton to disclose a DMA engine is as stated in Claim 14 above.

Bailey does not explicitly disclose a CRC machine.

However, Wilson discloses the CRC machine. (Wilson col 12, ll 11-13: includes MAC header and cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose a CRC machine is as stated in Claim 17 above.

Regarding Claim 35, Bailey discloses the system according to claim 34, wherein the non-flow-through NIC comprises a local memory. (Bailey pg 7, ll 30-32: direct data placement by NIC (network interface) into designated application buffers (memory))

Regarding Claim 36, Bailey discloses the system according to claim 35, wherein the non-flow-through NIC as the complete ULPDU is stored in the local memory. (Bailey pg 7, ll 30-32: direct data placement by NIC (network interface) into designated application buffers)

Bailey does not explicitly disclose a CRC calculation.

However, Wilson discloses a CRC calculation. (Wilson col 12, ll 11-13: includes MAC header and cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose a CRC calculation is as stated in Claim 17 above.

Regarding Claim 37, Bailey discloses the system according to claim 35, wherein the non-flow-through NIC after the complete ULPDU is stored in the local memory. (Bailey pg 7, ll 30-32: direct data placement by NIC (network interface) into designated application buffers)

Bailey does not explicitly disclose a CRC calculation.

However, Wilson discloses a CRC calculation. (Wilson col 12, ll 11-13: includes MAC header and cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose a CRC calculation is as stated in Claim 17 above.

Regarding Claim 38, Bailey discloses the system according to claim 35, wherein the non-flow-through NIC during a process by which the complete ULPDU is sent from the

local memory to a host memory. (Bailey pg 5, ll 20-22: based on information in ULPDUs place data in memory in host)

Bailey does not explicitly disclose a CRC calculation.

However, Wilson discloses a CRC calculation. (Wilson col 12, ll 11-13: includes MAC header and cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose a CRC calculation is as stated in Claim 17 above.

Regarding Claim 39, Bailey discloses the system according to claim 35, wherein the complete ULPDU comprises a marker-aligned protocol data unit. (Bailey pg 11, l 36 – pg 12, l 4: ULPDU completely contained with TCP segment; pg 7, ll 30-32: direct data placement from network interface into application buffers)

Regarding Claim 40, Bailey discloses the system according to claim 33, wherein the receiver comprises a flow-through NIC. (Bailey pg 7, ll 30-32: direct data placement by NIC (network interface controller) into designated application buffers)

Bailey does not explicitly disclose a DMA engine.

However, Pinkerton discloses a DMA engine. (Pinkerton col 2, ll 10-13: DMA (direct memory access) protocol; col 3, ll 52-58; col 3, ll 63-67: direct data placement; maps incoming data to a specific buffer and offset; col 8, ll 1-3: direct placement information placed in framing header)

Motivation for Pinkerton to disclose a DMA engine is as stated in Claim 14 above.

In addition, Bailey does not explicitly disclose a CRC machine.

However, Wilson discloses a CRC machine. (Wilson col 12, ll 11-13: include MAC header and a cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header is added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose a CRC machine is as stated in Claim 17 above.

Regarding Claim 41, Bailey discloses the system according to claim 40, wherein the flow-through NIC comprises a buffer. (Bailey pg 5, ll 20-22: protocol maintained for communications, place data in memory (buffer) on host; pg 7, ll 30-32: direct data placement by NIC (network interface controller) into designated application buffers)

Regarding Claim 42, Bailey discloses the system according to claim 41 and the non-flow-through NIC as the complete ULPDU is stored in the buffer.

Bailey does not explicitly disclose CRC calculations.

However, Wilson discloses CRC calculations. (Wilson col 12, ll 11-13: include MAC header and a cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header is added to packet followed by CRC portion, CRC check increases data integrity)

Motivation for Wilson to disclose CRC calculations is as stated in Claim 17 above.

Regarding Claim 43, Bailey discloses the system according to claim 41 and an ULP.

Bailey does not explicitly disclose a CRC calculation.

However, Wilson discloses the CRC calculation. (Wilson col 12, ll 11-13: include MAC

header and a cyclic redundancy check (CRC) portion; col 15, ll 6-10: MAC header is added to packet followed by CRC portion, CRC check increases data integrity) Motivation for Wilson to disclose a CRC calculation is as stated in Claim 17 above.

Regarding Claim 44, Bailey discloses the system according to claim 40, wherein the complete ULPDU comprises a marker-aligned protocol data unit. (Bailey pg 11, l 36 - pg 12, l 4: ULPDU completely contained with TCP segment (complete ULPDU); pg 7, ll 30-32: direct data placement by network interface into application buffers)

Response to Arguments

8. Applicant's arguments have been fully considered but they are not persuasive.

A. Applicant argues on page 10 of Remarks, *claim 1 recited that the incoming TPS has a marker header and a marker, but that the marker points to the marker header in the same incoming TPS. Neither Pinkerton nor Bailey, individually or combined, teaches the elements as previously set forth in claim 1.*

The Examiner disagrees. The previous set of claims entered on 9-27-2010 did not contain the term "same" in reference to the TPS. The amended claim limitations indicate the term "same" in reference to the TPS and this limitation be addressed in the current Office Action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyung H. Shin whose telephone number is (571)272-3920. The examiner can normally be reached on 9:30 am - 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tonia L. Dollinger can be reached on (571) 272-4170. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

August 21, 2011

/Kyung H Shin/
Primary Examiner, Art Unit 2443